RAW SEQUENCE LISTING   DATE: 08/19/2004
PATENT APPLICATION: **US/10/031,905**   TIME: 11:40:52

Input Set : **A:\PF-0721-PCT (sequence listing).txt**
Output Set: **N:\CRF4\08192004\J031905.raw**

```
        2 <110> APPLICANT: INCYTE GENOMICS, INC.
        3        TANG, Y. Tom
        4        HILLMAN, Jennifer L.
        5        BANDMAN, Olga
        6        YUE, Henry
        7        BAUGHN, Mariah R.
        8        LAL, Preeti
        9        LU, Dyung Aina M.
       10        SHAH, Purvi
       11        AZIMZAI, Yalda
W--> 12 <120> TITLE OF INVENTION: HUMAN SYNTHETASES
W--> 13 <130> FILE REFERENCE: PF-0721 PCT
W--> 14 <140> CURRENT APPLICATION NUMBER: To Be Assigned
C--> 15 <141> CURRENT FILING DATE: 2002-01-18
       16 <150> PRIOR APPLICATION NUMBER: 60/144,992; 60,168,858
W--> 17 <151> PRIOR FILING DATE: 1999-07-22; 1999-12-02
W--> 18 <160> NUMBER OF SEQ ID: 30
       19 <170> SOFTWARE: PERL Program
W--> 20 <210> SEQ ID NO: 1
       21 <211> LENGTH: 1176
       22 <212> TYPE: PRT
       23 <213> ORGANISM: Homo sapiens
W--> 24 <220> FEATURE:
       25 <221> NAME/KEY: misc_feature
       26 <223> OTHER INFORMATION: Incyte ID No: 1806212CD1
W--> 27 <400> SEQUENCE: 1
       28 Met Ala Glu Arg Lys Gly Thr Ala Lys Val Asp Phe Leu Lys Lys
       29  1               5                  10                  15
       30 Ile Glu Lys Glu Ile Gln Gln Lys Trp Asp Thr Glu Arg Val Phe
       31                 20                  25                  30
       32 Glu Val Asn Ala Ser Asn Leu Glu Lys Gln Thr Ser Lys Gly Lys
       33                 35                  40                  45
       34 Tyr Phe Val Thr Phe Pro Tyr Pro Tyr Met Asn Gly Arg Leu His
       35                 50                  55                  60
       36 Leu Gly His Thr Phe Ser Leu Ser Lys Cys Glu Phe Ala Val Gly
       37                 65                  70                  75
       38 Tyr Gln Arg Leu Lys Gly Lys Cys Cys Leu Phe Pro Phe Gly Leu
       39                 80                  85                  90
       40 His Cys Thr Gly Met Pro Ile Lys Ala Cys Ala Asp Lys Leu Lys
       41                 95                 100                 105
       42 Arg Glu Ile Glu Leu Tyr Gly Cys Pro Pro Asp Phe Pro Asp Glu
       43                110                 115                 120
       44 Glu Glu Glu Glu Glu Glu Thr Ser Val Lys Thr Glu Asp Ile Ile
```

ENTERED

RAW SEQUENCE LISTING   DATE: 08/19/2004
PATENT APPLICATION: US/10/031,905   TIME: 11:40:52

Input Set : **A:\PF-0721-PCT (sequence listing).txt**
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```
45                   125                 130                 135
46 Ile Lys Asp Lys Ala Lys Gly Lys Lys Ser Lys Ala Ala Ala Lys
47                   140                 145                 150
48 Ala Gly Ser Ser Lys Tyr Gln Trp Gly Ile Met Lys Ser Leu Gly
49         .         155                 160                 165
50 Leu Ser Asp Glu Glu Ile Val Lys Phe Ser Glu Ala Glu His Trp
51                   170                 175                 180
52 Leu Asp Tyr Phe Pro Pro Leu Ala Ile Gln Asp Leu Lys Arg Met
53                   185                 190                 195
54 Gly Leu Lys Val Asp Trp Arg Arg Ser Phe Ile Thr Thr Asp Val
55                   200                 205                 210
56 Asn Pro Tyr Tyr Asp Ser Phe Val Arg Trp Gln Phe Leu Thr Leu
57                   215                 220                 225
58 Arg Glu Arg Asn Lys Ile Lys Phe Gly Lys Arg Tyr Thr Ile Tyr
59                   230                 235                 240
60 Ser Pro Lys Asp Gly Gln Pro Cys Met Asp His Asp Arg Gln Thr
61                   245                 250                 255
62 Gly Glu Gly Val Gly Pro Gln Glu Tyr Thr Leu Leu Lys Leu Lys
63                   260                 265                 270
64 Val Leu Glu Pro Tyr Pro Ser Lys Leu Ser Gly Leu Lys Gly Lys
65                   275                 280                 285
66 Asn Ile Phe Leu Val Ala Ala Thr Leu Arg Pro Glu Thr Met Phe
67                   290                 295                 300
68 Gly Gln Thr Asn Cys Trp Val Arg Pro Asp Met Lys Tyr Ile Gly
69                   305                 310                 315
70 Phe Glu Thr Val Asn Gly Asp Ile Phe Ile Cys Thr Gln Lys Ala
71                   320                 325                 330
72 Ala Arg Asn Met Ser Tyr Gln Gly Phe Thr Lys Asp Asn Gly Val
73                   335                 340                 345
74 Val Pro Val Val Lys Glu Leu Met Gly Glu Glu Ile Leu Gly Ala
75                   350                 355                 360
76 Ser Leu Ser Ala Pro Leu Thr Ser Tyr Lys Val Ile Tyr Val Leu
77                   365                 370                 375
78 Pro Met Leu Thr Ile Lys Glu Asp Lys Gly Thr Gly Val Val Thr
79                   380                 385                 390
80 Ser Val Pro Ser Asp Ser Pro Asp Asp Ile Ala Ala Leu Arg Asp
81                   395                 400                 405
82 Leu Lys Lys Lys Gln Ala Leu Arg Ala Lys Tyr Gly Ile Arg Asp
83                   410                 415                 420
84 Asp Met Val Leu Pro Phe Glu Pro Val Pro Val Ile Glu Ile Pro
85                   425                 430                 435
86 Gly Phe Gly Asn Leu Ser Ala Val Thr Ile Cys Asp Glu Leu Lys
87                   440                 445                 450
88 Ile Gln Ser Gln Asn Asp Arg Glu Lys Leu Ala Glu Ala Lys Glu
89                   455                 460                 465
90 Lys Ile Tyr Leu Lys Gly Phe Tyr Glu Gly Ile Met Leu Val Asp
91                   470                 475                 480
92 Gly Phe Lys Gly Gln Lys Val Gln Asp Val Lys Lys Thr Ile Gln
93                   485                 490                 495
```

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Input Set : A:\PF-0721-PCT (sequence listing).txt
Output Set: N:\CRF4\08192004\J031905.raw

```
 94 Lys Lys Met Ile Asp Ala Gly Asp Ala Leu Ile Tyr Met Glu Pro
 95             500                 505                 510
 96 Glu Lys Gln Val Met Ser Arg Ser Ser Asp Glu Cys Val Val Ala
 97             515                 520                 525
 98 Leu Cys Asp Gln Trp Tyr Leu Asp Tyr Gly Glu Glu Asn Trp Lys
 99             530                 535                 540
100 Lys Gln Thr Ser Gln Cys Leu Lys Asn Leu Glu Thr Phe Cys Glu
101             545                 550                 555
102 Glu Thr Arg Arg Asn Phe Glu Ala Thr Leu Gly Trp Leu Gln Glu
103             560                 565                 570
104 His Ala Cys Ser Arg Thr Tyr Gly Leu Gly Thr His Leu Pro Trp
105             575                 580                 585
106 Asp Glu Gln Trp Leu Ile Glu Ser Leu Ser Asp Ser Thr Ile Tyr
107             590                 595                 600
108 Met Ala Phe Tyr Thr Val Ala His Leu Leu Gln Gly Gly Asn Leu
109             605                 610                 615
110 His Gly Gln Ala Glu Ser Pro Leu Gly Ile Arg Pro Gln Gln Met
111             620                 625                 630
112 Thr Lys Glu Val Trp Asp Tyr Val Phe Phe Lys Glu Ala Pro Phe
113             635                 640                 645
114 Pro Lys Thr Gln Ile Ala Lys Glu Lys Leu Asp Gln Leu Lys Gln
115             650                 655                 660
116 Glu Phe Glu Phe Trp Tyr Pro Val Asp Leu Arg Val Ser Gly Lys
117             665                 670                 675
118 Asp Leu Val Pro Asn His Leu Ser Tyr Tyr Leu Tyr Asn His Val
119             680                 685                 690
120 Ala Met Trp Pro Glu Gln Ser Asp Lys Trp Pro Thr Ala Val Arg
121             695                 700                 705
122 Ala Asn Gly His Leu Leu Leu Asn Ser Glu Lys Met Ser Lys Ser
123             710                 715                 720
124 Thr Gly Asn Phe Leu Thr Leu Thr Gln Ala Ile Asp Lys Phe Ser
125             725                 730                 735
126 Ala Asp Gly Met Arg Leu Ala Leu Ala Asp Ala Gly Asp Thr Val
127             740                 745                 750
128 Glu Asp Ala Asn Phe Val Glu Ala Met Ala Asp Ala Gly Ile Leu
129             755                 760                 765
130 Arg Leu Tyr Thr Trp Val Glu Trp Val Lys Glu Met Val Ala Asn
131             770                 775                 780
132 Trp Asp Ser Leu Arg Ser Gly Pro Ala Ser Thr Phe Asn Asp Arg
133             785                 790                 795
134 Val Phe Ala Ser Glu Leu Asn Ala Gly Ile Ile Lys Thr Asp Gln
135             800                 805                 810
136 Asn Tyr Glu Lys Met Met Phe Lys Glu Ala Leu Lys Thr Gly Phe
137             815                 820                 825
138 Phe Glu Phe Gln Ala Ala Lys Asp Lys Tyr Arg Glu Leu Ala Val
139             830                 835                 840
140 Glu Gly Met His Arg Glu Leu Val Phe Arg Phe Ile Glu Val Gln
141             845                 850                 855
142 Thr Leu Leu Leu Ala Pro Phe Cys Pro His Leu Cys Glu His Ile
```

```
143                 860              865              870
144 Trp Thr Leu Leu Gly Lys Pro Asp Ser Ile Met Asn Ala Ser Trp
145                 875              880              885
146 Pro Val Ala Gly Pro Val Asn Glu Val Leu Ile His Ser Ser Gln
147                 890              895              900
148 Tyr Leu Met Glu Val Thr His Asp Leu Arg Leu Arg Leu Lys Asn
149                 905              910              915
150 Tyr Met Met Pro Ala Lys Gly Lys Lys Thr Asp Lys Gln Pro Leu
151                 920              925              930
152 Gln Lys Pro Ser His Cys Thr Ile Tyr Val Ala Lys Asn Tyr Pro
153                 935              940              945
154 Pro Trp Gln His Thr Thr Leu Ser Val Leu Arg Lys His Phe Glu
155                 950              955              960
156 Ala Asn Asn Gly Lys Leu Pro Asp Asn Lys Val Ile Ala Ser Glu
157                 965              970              975
158 Leu Gly Ser Met Pro Glu Leu Lys Lys Tyr Met Lys Lys Val Met
159                 980              985              990
160 Pro Phe Val Ala Met Ile Lys Glu Asn Leu Glu Lys Met Gly Pro
161                 995              1000             1005
162 Arg Ile Leu Asp Leu Gln Leu Glu Phe Asp Glu Lys Ala Val Leu
163                 1010             1015             1020
164 Met Glu Asn Ile Val Tyr Leu Thr Asn Ser Leu Glu Leu Glu His
165                 1025             1030             1035
166 Ile Glu Val Lys Phe Ala Ser Glu Ala Glu Asp Lys Ile Arg Glu
167                 1040             1045             1050
168 Asp Cys Cys Pro Gly Lys Pro Leu Asn Val Phe Arg Ile Glu Pro
169                 1055             1060             1065
170 Gly Val Ser Val Ser Leu Val Asn Pro Gln Pro Ser Asn Gly His
171                 1070             1075             1080
172 Phe Ser Thr Lys Ile Glu Ile Arg Gln Gly Asp Asn Cys Asp Ser
173                 1085             1090             1095
174 Ile Ile Arg Arg Leu Met Lys Met Asn Arg Gly Ile Lys Asp Leu
175                 1100             1105             1110
176 Ser Lys Val Lys Leu Met Arg Phe Asp Asp Pro Leu Leu Gly Pro
177                 1115             1120             1125
178 Arg Arg Val Pro Val Leu Gly Lys Glu Tyr Thr Glu Lys Thr Pro
179                 1130             1135             1140
180 Ile Ser Glu His Ala Val Phe Asn Val Asp Leu Met Ser Lys Lys
181                 1145             1150             1155
182 Ile His Leu Thr Glu Asn Gly Ile Arg Val Asp Ile Gly Asp Thr
183                 1160             1165             1170
184 Ile Ile Tyr Leu Val His
185                 1175
186 <210> SEQ ID NO: 2
187 <211> LENGTH: 739
188 <212> TYPE: PRT
189 <213> ORGANISM: Homo sapiens
190 <220> FEATURE:
191 <221> NAME/KEY: misc_feature
```

W--> 190 <220> FEATURE:

RAW SEQUENCE LISTING   DATE: 08/19/2004
PATENT APPLICATION: **US/10/031,905**   TIME: 11:40:52

Input Set : **A:\PF-0721-PCT (sequence listing).txt**
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```
 192 <223> OTHER INFORMATION: Incyte ID No: 2083883CD1
--> 193 <400> SEQUENCE: 2
 194 Met Asp Ala Leu Lys Pro Pro Cys Leu Trp Arg Asn His Glu Arg
 195   1               5                  10                  15
 196 Gly Lys Lys Asp Arg Asp Ser Cys Gly Arg Lys Asn Ser Glu Pro
 197                  20                  25                  30
 198 Gly Ser Pro His Ser Leu Glu Ala Leu Arg Asp Ala Ala Pro Ser
 199                  35                  40                  45
 200 Gln Gly Leu Asn Phe Leu Leu Leu Phe Thr Lys Met Leu Phe Ile
 201                  50                  55                  60
 202 Phe Asn Phe Leu Phe Ser Pro Leu Pro Thr Pro Ala Leu Ile Cys
 203                  65                  70                  75
 204 Ile Leu Thr Phe Gly Ala Ala Ile Phe Leu Trp Leu Ile Thr Arg
 205                  80                  85                  90
 206 Pro Gln Pro Val Leu Pro Leu Leu Asp Leu Asn Asn Gln Ser Val
 207                  95                 100                 105
 208 Gly Ile Glu Gly Gly Ala Arg Lys Gly Val Ser Gln Lys Asn Asn
 209                 110                 115                 120
 210 Asp Leu Thr Ser Cys Cys Phe Ser Asp Ala Lys Thr Met Tyr Glu
 211                 125                 130                 135
 212 Val Phe Gln Arg Gly Leu Ala Val Ser Asp Asn Gly Pro Cys Leu
 213                 140                 145                 150
 214 Gly Tyr Arg Lys Pro Asn Gln Pro Tyr Arg Trp Leu Ser Tyr Lys
 215                 155                 160                 165
 216 Gln Val Ser Asp Arg Ala Glu Tyr Leu Gly Ser Cys Leu Leu His
 217                 170                 175                 180
 218 Lys Gly Tyr Lys Ser Ser Pro Asp Gln Phe Val Gly Ile Phe Ala
 219                 185                 190                 195
 220 Gln Asn Arg Pro Glu Trp Ile Ile Ser Glu Leu Ala Cys Tyr Thr
 221                 200                 205                 210
 222 Tyr Ser Met Val Ala Val Pro Leu Tyr Asp Thr Leu Gly Pro Glu
 223                 215                 220                 225
 224 Ala Ile Val His Ile Val Asn Lys Ala Asp Ile Ala Val Val Ile
 225                 230                 235                 240
 226 Cys Asp Thr Pro Gln Lys Ala Leu Val Leu Ile Gly Asn Val Glu
 227                 245                 250                 255
 228 Lys Gly Phe Thr Pro Ser Leu Lys Val Ile Ile Leu Met Asp Pro
 229                 260                 265                 270
 230 Phe Asp Asp Asp Leu Lys Gln Arg Gly Glu Lys Ser Gly Ile Glu
 231                 275                 280                 285
 232 Ile Leu Ser Leu Tyr Asp Ala Glu Asn Leu Gly Lys Glu His Phe
 233                 290                 295                 300
 234 Arg Lys Pro Val Pro Pro Ser Pro Glu Asp Leu Ser Val Ile Cys
 235                 305                 310                 315
 236 Phe Thr Ser Gly Thr Thr Gly Asp Pro Lys Gly Ala Met Ile Thr
 237                 320                 325                 330
 238 His Gln Asn Ile Val Ser Asn Ala Ala Ala Phe Leu Lys Cys Val
 239                 335                 340                 345
 240 Glu His Ala Tyr Glu Pro Thr Pro Asp Asp Val Ala Ile Ser Tyr
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 08/19/2004
PATENT APPLICATION: **US/10/031,905**   TIME: 11:40:53

Input Set : **A:\PF-0721-PCT (sequence listing).txt**
Output Set: **N:\CRF4\08192004\J031905.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:12; Xaa Pos. 63,64,65
Seq#:27; N Pos. 193,196,197,198

VERIFICATION SUMMARY   DATE: 08/19/2004
PATENT APPLICATION: **US/10/031,905**   TIME: 11:40:53

Input Set : **A:\PF-0721-PCT (sequence listing).txt**
Output Set: **N:\CRF4\08192004\J031905.raw**

```
L:12 M:283 W: Missing Blank Line separator, <120> field identifier
L:13 M:283 W: Missing Blank Line separator, <130> field identifier
L:14 M:283 W: Missing Blank Line separator, <140> field identifier
L:14 M:270 C: Current Application Number differs, Replaced Current Application Number
L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:17 M:256 W: Invalid Numeric Header Field, Wrong Prior FILING DATE:YYYY-MM-DD
L:18 M:283 W: Missing Blank Line separator, <160> field identifier
L:20 M:283 W: Missing Blank Line separator, <210> field identifier
L:24 M:283 W: Missing Blank Line separator, <220> field identifier
L:27 M:283 W: Missing Blank Line separator, <400> field identifier
L:190 M:283 W: Missing Blank Line separator, <220> field identifier
L:193 M:283 W: Missing Blank Line separator, <400> field identifier
L:298 M:283 W: Missing Blank Line separator, <220> field identifier
L:301 M:283 W: Missing Blank Line separator, <400> field identifier
L:386 M:283 W: Missing Blank Line separator, <220> field identifier
L:389 M:283 W: Missing Blank Line separator, <400> field identifier
L:416 M:283 W: Missing Blank Line separator, <220> field identifier
L:419 M:283 W: Missing Blank Line separator, <400> field identifier
L:510 M:283 W: Missing Blank Line separator, <220> field identifier
L:513 M:283 W: Missing Blank Line separator, <400> field identifier
L:606 M:283 W: Missing Blank Line separator, <220> field identifier
L:609 M:283 W: Missing Blank Line separator, <400> field identifier
L:712 M:283 W: Missing Blank Line separator, <220> field identifier
L:715 M:283 W: Missing Blank Line separator, <400> field identifier
L:806 M:283 W: Missing Blank Line separator, <220> field identifier
L:809 M:283 W: Missing Blank Line separator, <400> field identifier
L:882 M:283 W: Missing Blank Line separator, <220> field identifier
L:885 M:283 W: Missing Blank Line separator, <400> field identifier
L:956 M:283 W: Missing Blank Line separator, <220> field identifier
L:959 M:283 W: Missing Blank Line separator, <400> field identifier
L:1000 M:283 W: Missing Blank Line separator, <220> field identifier
L:1003 M:283 W: Missing Blank Line separator, <220> field identifier
L:1007 M:283 W: Missing Blank Line separator, <400> field identifier
L:1016 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:60
L:1086 M:283 W: Missing Blank Line separator, <220> field identifier
L:1089 M:283 W: Missing Blank Line separator, <400> field identifier
L:1156 M:283 W: Missing Blank Line separator, <220> field identifier
L:1159 M:283 W: Missing Blank Line separator, <400> field identifier
L:1218 M:283 W: Missing Blank Line separator, <220> field identifier
L:1221 M:283 W: Missing Blank Line separator, <400> field identifier
L:1272 M:283 W: Missing Blank Line separator, <220> field identifier
L:1275 M:283 W: Missing Blank Line separator, <400> field identifier
L:1346 M:283 W: Missing Blank Line separator, <220> field identifier
L:1349 M:283 W: Missing Blank Line separator, <400> field identifier
L:1410 M:283 W: Missing Blank Line separator, <220> field identifier
L:1413 M:283 W: Missing Blank Line separator, <400> field identifier
L:1451 M:283 W: Missing Blank Line separator, <220> field identifier
L:1454 M:283 W: Missing Blank Line separator, <400> field identifier
```

VERIFICATION SUMMARY   DATE: 08/19/2004
PATENT APPLICATION: **US/10/031,905**   TIME: 11:40:53

Input Set : **A:\PF-0721-PCT (sequence listing).txt**
Output Set: **N:\CRF4\08192004\J031905.raw**

```
L:1495 M:283 W: Missing Blank Line separator, <220> field identifier
L:1498 M:283 W: Missing Blank Line separator, <400> field identifier
L:1543 M:283 W: Missing Blank Line separator, <220> field identifier
L:1546 M:283 W: Missing Blank Line separator, <400> field identifier
L:1587 M:283 W: Missing Blank Line separator, <220> field identifier
L:1590 M:283 W: Missing Blank Line separator, <400> field identifier
L:1801 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:180
```